

Particulate emission from agricultural waste fired boiler

ABSTRACT

In the current overview paper, particulate emissions from the combustion of agricultural residues are discussed. The influence of operating parameters and fuel quality was investigated. Studies on the mass concentration, number concentration and size distribution of particles emitted from agricultural waste fired boiler are presented. Mass concentrations of particles in the flue gas from small scale combustion appliances reported in the literature to be in the range of 8 - 2095 mg/Nm³, while particle number concentrations in the range of 7.0×10^{-2} to 1.8×10^8 particles/cm³. The dominating chemical compositions of the particle emissions were Ca followed by K, Mn and Mg. Organic Carbon (OC), Elemental carbon (EC), Elemental emission, Poly-cyclic Aromatic hydrocarbon (PAH) and emission of different size particles (PM_{2.5} to PM₁₀) were also reported. Combustion temperature is the most important factor in determining PAH composition.

Keyword: Particulate matter; Combustion technologies; Fly-ash; Agricultural wastes